

A NEW SPECIES OF ADELGES (HEMIPTERA,
PHYLLOXERIDAE)

BY P. N. ANNAND

Stanford University, California

As has been pointed out by students of the Hemiptera, the type of the genus *Chermes* is apparently *Chermes ficus* Linnæus, which is a species belonging to the family commonly known as the Psyllidæ. Consequently, another generic name must be found for the Aphidoid genus *Chermes*. Without here going into the nomenclatorial problems involved, it appears that the next available name for this genus is *Adelges* Vallot, 1836, which was erected for *Adelges laricis* Vallot, this being synonymous with the species now accepted as *Chermes abietis* Linnæus.

***Adelges tsugæ* Annand, new species**

Fundatrix spuria (Fig. J). Length (flattened on the slide) 1.04 mm., width .76 mm., width of thoracic shield .52 mm. Dorsal plates of the prothorax fused to form a shield on which are three so-called "spinal" pore areas, one "pleural" area toward the posterior margin, and one elongate "marginal" area. The shield is continuous with a ventral plate which partially surrounds the base of the antennæ and which bears a large pore area. Dorsal pore plates of the meso- and metathorax distinct except in a few cases where the spinal and pleural plates are fused into one. Mesothorax with a fourth pore plate outside each coxa and a fifth near the meson ventrally. Metathorax with this fifth plate present, but without the fourth. Venter of the thorax with a pair of heavily chitinized furcæ present on meso and metathorax. First abdominal segment with three dorsal plates; second and third with three dorsal plates, one just ventrad of the spiracle and another near the meson on each side ventrally; segments four to six, inclusive, without the median ventral plates; segment seven, lacking all but the spinal and pleural plates. A large post-anal plate (Fig. I) is present. All the coxæ with heavily chitinized pore plates. Wax pores on all the plates small and abundant, surrounded by a considerable, chitinized, non-pore-bearing area. Posterior extension of the abdomen, which bears the ovipositor, without plates, but with numerous small, knobbed setæ (Fig. K) which are distributed as shown in Fig. J. Abdominal spiracles present on segments two to six, inclusive.

First stage larva of colonici (Fig. A). (This is the larva from the egg of the fundatrix spuria on *Tsuga heterophylla*.) Length (flattened on the slide) .36 mm., width .24 mm. Dorsal plates of head and prothorax separate. Plates of the head fused to form a single

large plate on each side of the median line, this extending ventrad nearly to the base of the antenna and bearing a single row of pores along the mesal and lateral margins. Prothorax covered by two plates which bear pores disposed in the same manner. Mesothorax with "spinal" and "pleural" plates fused, the "marginal" plates distinct, the plate formed by the first two with a row of pores along the mesal and lateral margins. Metathorax and the abdominal segments up to and including the fifth with three distinct plates; sixth abdominal segment with "spinal" and "pleural" plates only; seventh with "spinal" plates only; pores are present on the mesal margin of the "spinal" plates of the metathorax, on first to fourth abdominal segments, and on the lateral margin of the marginal plates on the second to fifth abdominal segments. Venter without plates. In the case of newly hatched larvæ the plates are but lightly chitinized and are apparently smooth except for two or three furrows which radiate from the base of the single, centrally located seta. On the cast skin of a first-stage larva (Fig. C) distinct reticulations are apparent, particularly on the meso- and metathorax. Antennæ (Fig. B) three-segmented, with the third segment about four times the length of the second. Legs (Fig. D) comparatively large, with two long setæ arising from the first tarsal segment and two knobbed setæ on the second. Spiracles not distinguishable on the abdomen, but perhaps present as unchitinized openings.

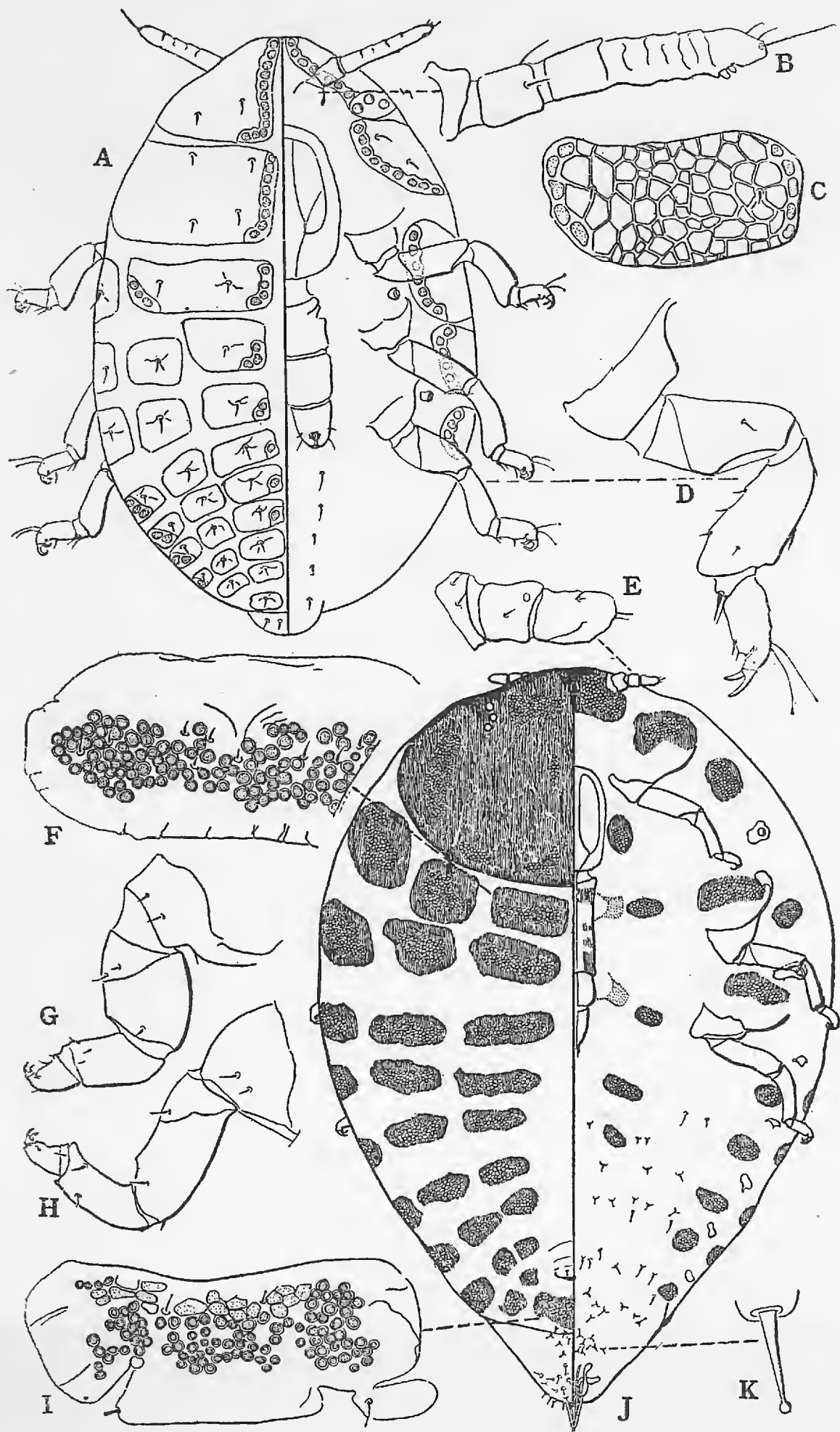
Second stage larva of *colonici*. Length (flattened on slide), .48 mm.; width, .32 mm. Wax pores and plates distributed as in the fundatrix. Plates not as heavily chitinized and proportionately smaller than in the fundatrix. Legs very short and thick. Abdominal spiracles present as in fundatrix.

Third stage larva of *colonici*. Length, .73 mm.; width, .58 mm. Very similar to the second stage except that the plates are now heavily chitinized and the legs somewhat heavier, the posterior femur (Fig. G) being nearly as wide as long.

Adult *colonici*. Without marked differences from the fundatrix spuria except a slightly smaller size and slightly lighter chitinization.

Holotype and paratype mounts in the Stanford University collection. Type locality, Eugene, Oregon, from *Tsuga heterophylla*. The species has been taken also from the same host in the following localities: Fort Bragg, California (C. D. Duncan and from herbarium specimen); Portland and Eugene, Oregon (J. S. Boyce); Mt. Hood, Oregon (P. N. Annand). The primary host, if any exists, is unknown.

This species is readily distinguishable from the others in the genus by the pore distribution in the first stage larva, the large pore plates with small pores, the knobbed abdominal setæ of the adult and the distinct thoracic shield.



NOTES ON BIOLOGY AND HABITS

All the stages observed feed on the bark of *Tsuga heterophylla*, secreting an abundant, cottony wool. Where observed on Mt. Hood the insect in a few cases appeared sufficiently abundant to cause considerable damage, and the leaves of the infested twigs showed the effects of the insects' work. In this instance they were more abundant on the higher branches, fifteen to twenty feet from the ground. Egg-laying is well under way by April 15, as material collected on that date at Eugene, Oregon, included a few first and second stage larvæ, as well as many eggs. According to my observations the bark of the twigs only, to the exclusion of the larger branches, is attacked. The alate forms are unknown.

CAPTION FOR FIGURE

(See page 81)

Adelges tsugæ Annand, new species: A, first stage nymph of colonici; B, antenna of the same; C, plate formed by the fusion of the spinal and pleural plates of mesothorax, from cast skin of first stage nymph; D, posterior leg of first stage nymph; E, antenna of fundatrix spuria; F, plate from dorsum of fundatrix spuria; G, posterior leg of third stage nymph of colonici; H, posterior leg of fundatrix spuria; I, post-anal plate of fundatrix spuria; J, fundatrix spuria; K, knobbed seta from ventral side of fundatrix spuria.

Calosoma subæneum Chaud. It will interest coleopterists to learn that two specimens of this beautiful and rare species exist in collections on the Pacific Coast, one in the collection of Dr. E. C. Van Dyke, the other in my own. These specimens were taken in Fresno County by Mr. Baron, and evidently were given by him to G. W. Harford of Alameda. Later, Mr. W. M. Giffard of Honolulu acquired the Harford collection and very kindly placed these specimens in Dr. Van Dyke's and my collections. As far as I know, the species has not been taken in recent years and, like *Elaphrus viridis*, is apparently a lost species.—F. E. Blaisdell.